In the Claims

1. (Previously Presented) A plasma cutting system comprising:

a plasma cutting power source;

a plasma torch operationally connected to the plasma cutting power source; and

a processing unit for controlling the plasma cutting power source, the processing unit disposed within the plasma torch to reduce signal path length and thereby provide reduced feedback delay time ~~and configured to control the plasma cutting power source~~ during a plasma cutting process.

2. (Original) The plasma cutting system of claim 1 wherein the processing unit is further configured to receive data from a plurality of sensors disposed within the plasma torch.

3. (Original) The plasma cutting system of claim 2 wherein the processing unit is further configured to interpret feedback from the plurality of sensors and regulate operation of the plasma cutting power source according to the feedback.

4. (Original) The plasma cutting system of claim 1 wherein the plasma torch is connected to the plasma cutting power source via a communications link such that the processing unit is in communication with the plasma cutting power source.

5. (Previously Presented) The plasma cutting system of claim 4 wherein the communications link at least supplies power to the plasma torch.

6. (Original) The plasma cutting system of claim 4 wherein the processing unit is further configured to serialize communication with the plasma cutting power source.

7. (Original) The plasma cutting system of claim 1 wherein the processing unit is further configured to receive control data from at least one user input and control the plasma cutting process according to the user input.

8. (Original) The plasma cutting system of claim 7 wherein the user input is one of at least a start pilot arc command and an adjust amperage control.

9. (Original) The plasma cutting system of claim 1 wherein the plasma torch is configured to perform the plasma cutting process with a maximum open circuit output voltage of greater than 220 volts DC.

10. (Original) The plasma cutting system of claim 1 wherein the plasma cutting power source includes at least one controller configured to adjust a power output based on at least control signals from the plasma torch processing unit.

11. (Original) The plasma cuting system of claim 1 wherein the processing unit is configured to control the plasma cutting power source by changing more than one operating parameter of the plasma cutting process.

12. ~~12.~~ (Original) A controller disposed within a plasma cutting torch, the controller configured to:

receive operational feedback regarding a plasma cutting process in the plasma cutting torch through at least one reduced signal path and thereby reduce delay time;

process the operational feedback in the plasma cutting torch;

transmit a control signal from the plasma cutting torch to a plasma cutting power source, the control signal having at least one control command that when processed by the plasma cutting power source causes a change in operation of the plasma cutting power source.

13. (Original) The controller of claim 12 configured to receive the operational feedback from a plurality of feedback sensors, wherein the feedback sensors include at least one operational feedback sensor and at least one user input sensor.

14. (Previously Presented) The controller of claim 13 wherein the at least one operational feedback sensor includes at least one of a power source activation indicator, an electrode type indicator, a tip type indicator, a cup position indicator, a consumable indicator, a shorted component indicator, an air pressure indicator, a temperature indicator, a trigger position indicator, a trigger safety indicator, an operation amperage indicator, a current transfer indictor, and a voltage drop indicator.

15. (Original) The controller of clam 13 wherein the plurality of feedback sensors is disposed within the plasma cutting torch.

16. (Original) The controller of claim 13 wherein the user-input is one of at least a start pilot arc command and an adjust amperage control.

17. (Original) The controller of claim 12 wherein the plasma cutting torch is configured to be operable with multiple plasma cutting power sources.

18. (Original) A plasma cutting torch assembly comprising:

a torch body enclosing a plasma-cutting electrode;

a plurality of sensors disposed within the torch body and configured to provide operational feedback regarding an in-operation plasma cutter; and

a processing unit disposed within the torch body to receive feedback from the plurality of sensors and configured to control a plasma cutting process according to the feedback, wherein at least one feedback path from the sensors to the processing unit is reduced to improve response time.

19. (Previously Presented) The plasma torch assembly of claim 18 wherein the plurality of feedback sensors includes at least one user input sensor, a power source activation sensor, an electrode type indicator, a tip type indicator, a cup position indicator, a consumable indicator, a shorted component indicator, an air pressure indicator, a temperature indicator, a trigger position indicator, a trigger safety indicator, an operation amperage indicator, a current transfer indictor, and a voltage drop indicator.

20. (Original) The plasma torch assembly of claim 18 wherein the processing unit disposed within the torch body is further configured to control starting the plasma cutting process.

21. (Original) The plasma torch assembly of claim 18 wherein the processing unit is further configured to serialize control commands that when processed by a plasma cutting power source causes a change in the plasma cutting process.

22. (Original) The plasma torch assembly of claim 18 wherein the processing unit controls the plasma cutting process by sending control commands to a plasma cutting power source.